

CLAIMS

What is claimed is:

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1. A pin head for a microarraying apparatus comprising:
a pin holder for holding an array of pins;
a vertical drive operable to move the pin holder in a vertical axis; and
a positioning mechanism that cooperates with the vertical drive to mechanically define a lowest point of travel for the pins in the vertical axis.
 - 10 2. A pin head according to claim 1, in which the positioning mechanism comprises a crank system having a bottom dead center position that mechanically defines the lowest point of travel.
 - 15 3. A pin head according to claim 2, in which the vertical drive comprises a rotary solenoid coupled to the pin holder by the crank system so as to transfer rotation of the rotary solenoid to linear motion of the pin holder in the vertical axis.
 - 20 4. A pinhead according to claim 2, in which the vertical drive comprises a rotary motor which is coupled to the pin holder by the crank system so as to transfer rotation of the rotary motor to linear motion of the pin holder in the vertical axis.
 - 25 5. A microarraying apparatus comprising:
an apparatus bed defining an arraying surface for carrying one or more slides;
a well plate platform for carrying at least one well plate; and
a height adjustment mechanism operable to alter the height of the well plate platform relative to that of the apparatus bed.
 - 30 6. A microarraying apparatus according to claim 5, in which the height adjustment mechanism is manually actuatable.

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7. A microarraying apparatus according to claim 6, in which the height adjuster is provided with a distance scale indicative of the height of the well plate platform relative to that of the apparatus bed.

5 8. A microarraying apparatus according to claim 5, further comprising:
a mounting frame mounted over the apparatus bed; and
a pin head mounted on the mounting frame and being provided with a drive system operable to move the pin head across the arraying surface, the pin head comprising a pin holder for holding an array of pins, a vertical drive operable to
10 move the pin holder in a vertical axis transverse to the arraying surface, and a positioning mechanism that mechanically defines a bottom position of the pin holder.

9. A microarraying apparatus according to claim 8, further comprising a height adjustment arrangement manually operable to adjust the bottom position by adjusting
15 a vertical distance between the mounting frame and the pin head.

10. A microarraying apparatus according to claim 8, in which the positioning mechanism comprises a crank system having a bottom dead center and coupled to the pin holder so that the pin holder achieves its lowest position when the crank system
20 is at bottom dead center.

11. A microarraying apparatus according to claim 10, in which the vertical drive comprises a rotary solenoid which is coupled to the pin holder by the crank system, the crank system operable to transfer motion produced by the rotary solenoid to the
25 pin holder.

12. A microarraying apparatus according to claim 10, in which the vertical drive comprises a rotary motor which is coupled to the pin holder by the crank system, the crank system operable to transfer motion produced by the rotary motor to the pin
30 holder.

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13. A head apparatus for a microarraying apparatus comprising:
a mount adapted to attach to a microarraying apparatus;
a pin holder for holding an array of pins;
5 a vertical drive operable to move the pin holder in a vertical axis;
a positioning mechanism that cooperates with the vertical drive to
mechanically define a lowest point of travel of the pin holder in the vertical axis; and
a height adjustment arrangement operable to allow the lowest point of travel
to be adjusted relative to the mount.
- 10 14. A spotting method using a microarrayer having an apparatus bed and a well
plate platform, the method comprising:
arranging at least one slide on the apparatus bed to provide a spotting surface;
arranging a well plate filled to a level with spotting liquid on the well plate
15 platform;
vertically aligning the well plate platform relative to the apparatus bed so that
the spotting surface lies at a desired height at or below the level of the spotting
liquid;
dipping a pin from a pin head into the spotting liquid by moving the pin to a
20 lowered position;
moving the pin head across the microarrayer to a spotting position; and
depositing the spotting liquid onto the spotting surface by moving the pin
once again to the lowered position.

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